

Welcome to the Forthwind Offshore Wind public exhibition

Thank you for coming along today. We aim to introduce you to all aspects of the Forthwind Offshore Wind Demonstration Project proposal. We hope you take the opportunity to tell us your thoughts on what will be a pioneering step in offshore wind. Please don't hesitate to ask Gemma or Marc if you have any questions.

This project will unlock new capacities in offshore wind generation providing a significant contribution to a low carbon future worldwide and creating green energy jobs to deliver on essential climate change targets – and all pioneered on Fife's energy coast.

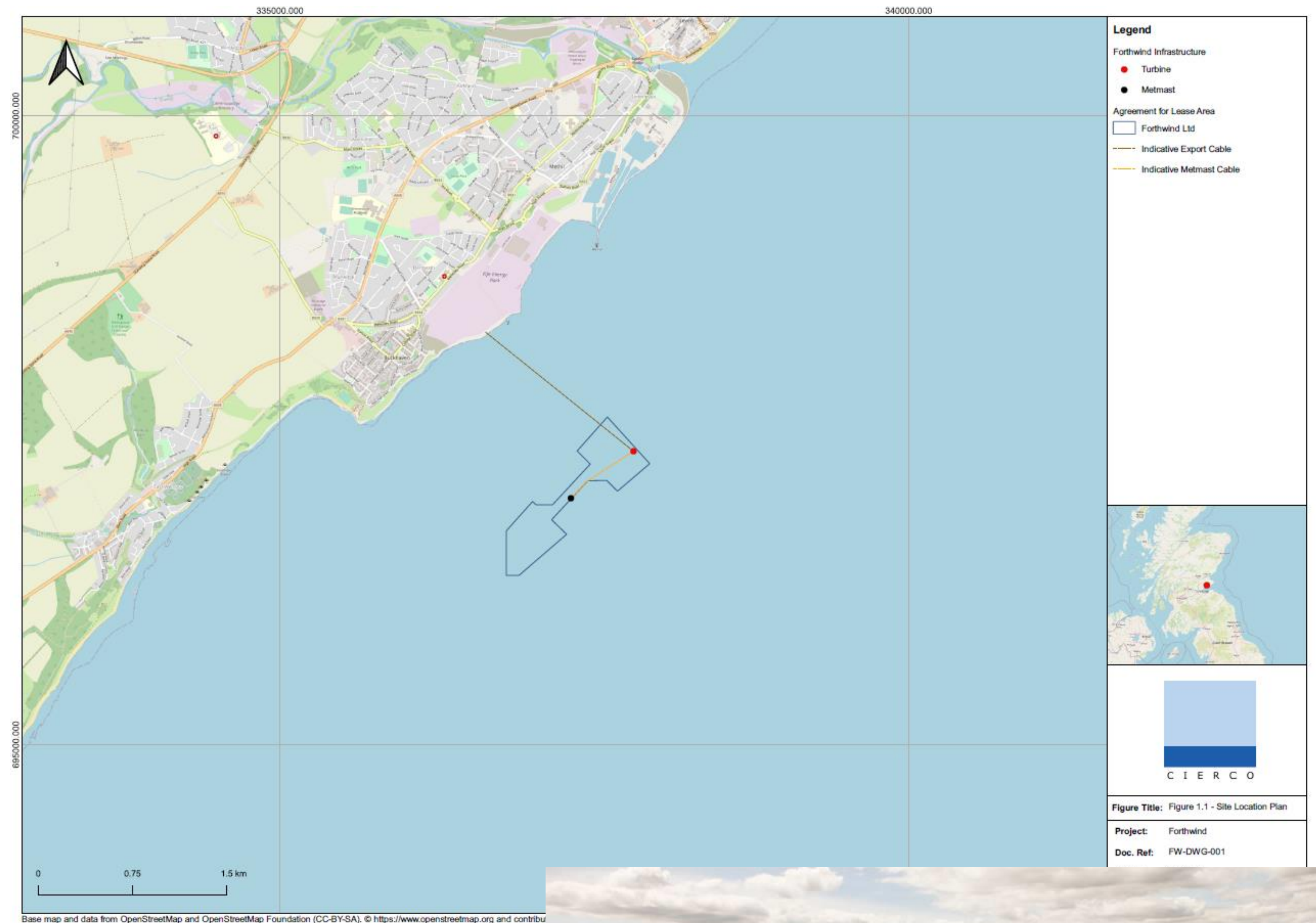
Please take your time in viewing the information provided - we intend to submit a Section 36 and Marine Licence application to Marine Scotland early in 2022 and there will be an opportunity to record. We are part of the Fife local community and we will maintain an open dialogue as we move forward. Please check out our website www.Forthwind.co.uk or contact us at info@ciercoenergy.com

Overview

Cierco Ltd is the developer of the Forthwind Offshore Wind Demonstration Project. Cierco is a Scottish renewable energy development company based in Aberdour, Fife that aims to facilitate the commercialisation of new marine renewable energy technologies.

A test and demonstration seabed lease agreement has been secured from the Crown Estate Scotland and the turbine will be located approximately 1.5 kilometres (km) from the Methil coastline.

The Methil site was chosen following detailed analysis of technical, economic and environmental factors. Criteria that informed the site selection process included: sensitive habitats and species, seabed conditions, port facilities, metocean conditions and proximity to a grid connection.



What we are proposing...



The Forthwind Offshore Wind Demonstration Project will, as a technology demonstration project, provide a platform to show innovative, cost efficient, low risk wind energy technology solutions to address some of the key challenges in the offshore wind industry. The development will:

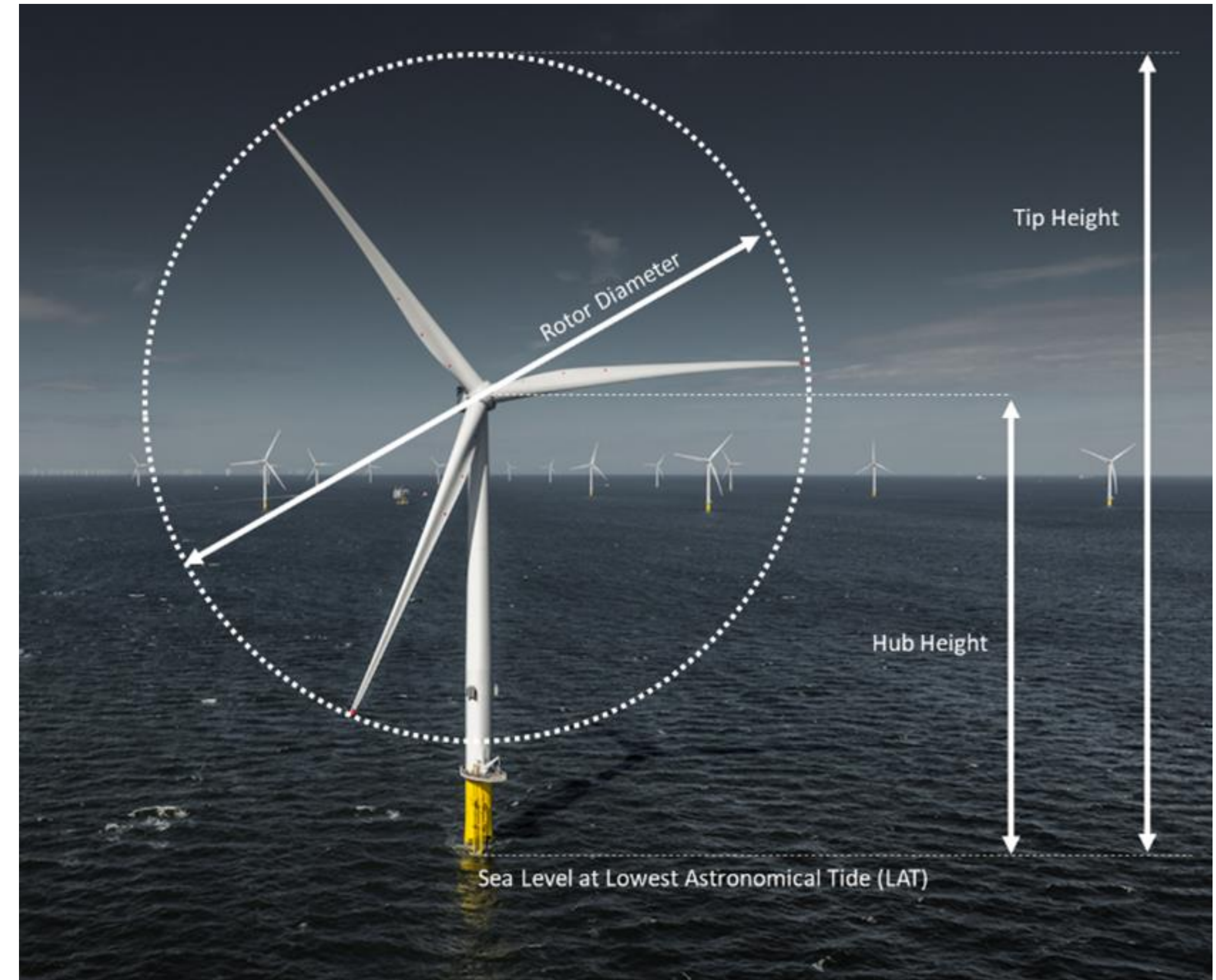
- Consist of one Wind Turbine Generator (WTG)
- Have a rotor diameter of 255m
- Be at a water depth of 15m
- Have an offshore cable route of approximately 1.5 km
- Be connected to the local Grid at Fife Energy Park (at 33kv)
- Be capable of generating up to 20MW of renewable power.

Forthwind is proposing to install 1 offshore wind turbine with a capacity of up to 20MW. Visually the turbine is similar to a 'conventional' offshore wind turbine, although it is technically different having a larger generation capacity and a different internal technical design.

The Turbine and Meteorological Mast

Key Data and Dimensions of the Forthwind Turbine

Number of blades	3
Orientation	Upwind
Direction of Rotation	Clockwise
Rotor Diameter	255 metres
Length of rotor	122.5 metres
Blade swept area	45,244 m ²
Hub height	156 m HAT
Tip height above HAT	280 m HAT
Blade Clearance to HAT	25 metres
Rated Capacity	up to 20 MW
Voltage	66kV
Structure	Tubular Steel Tower
Number of structure legs	4 legs on Steel Jacket / Transition Piece
Foundation	Pin piles (one per leg)
Design Life	25 years
M&O Access	Boat



Key Data of the Forthwind Meteorological Mast

Height	160 m HAT
Structure	Lattice Steel Tower
Foundation	Monopile
Design Life	5 years

Potential Offshore Impacts



Potential impacts during Operation

- Visual change to the seascape
- Potential for cumulative noise impact at Methil
- Potential impact on birds (disturbance and bird strike)
- Increased vessel movements by maintenance activities around the array.

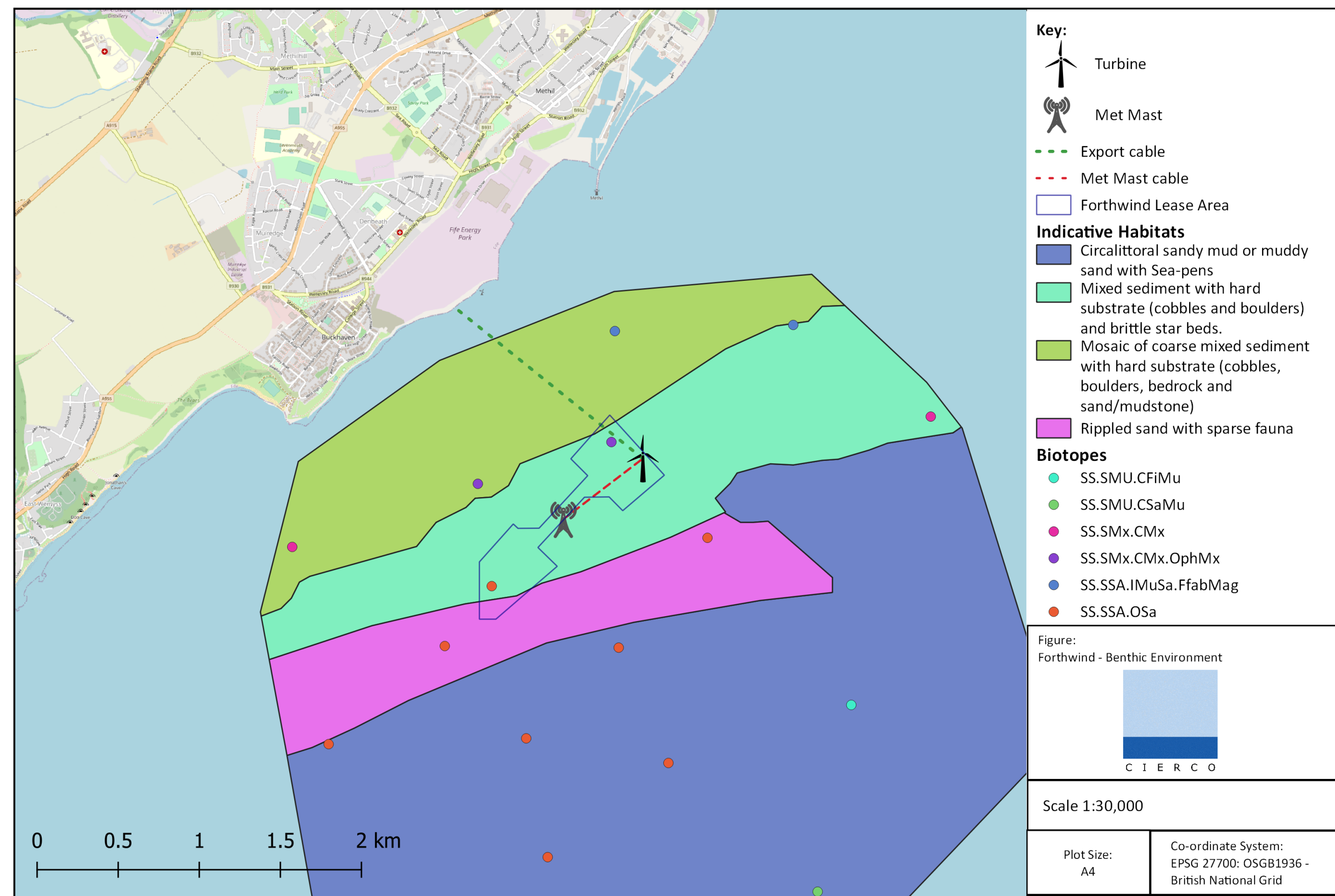
All potential impacts are being assessed and will be reported in an Environment Statement to accompany our Marine Licence consent application. Where appropriate, we will identify ways to mitigate any impact that may arise as a result of the project through design or other measures.

Potential temporary impacts during Construction

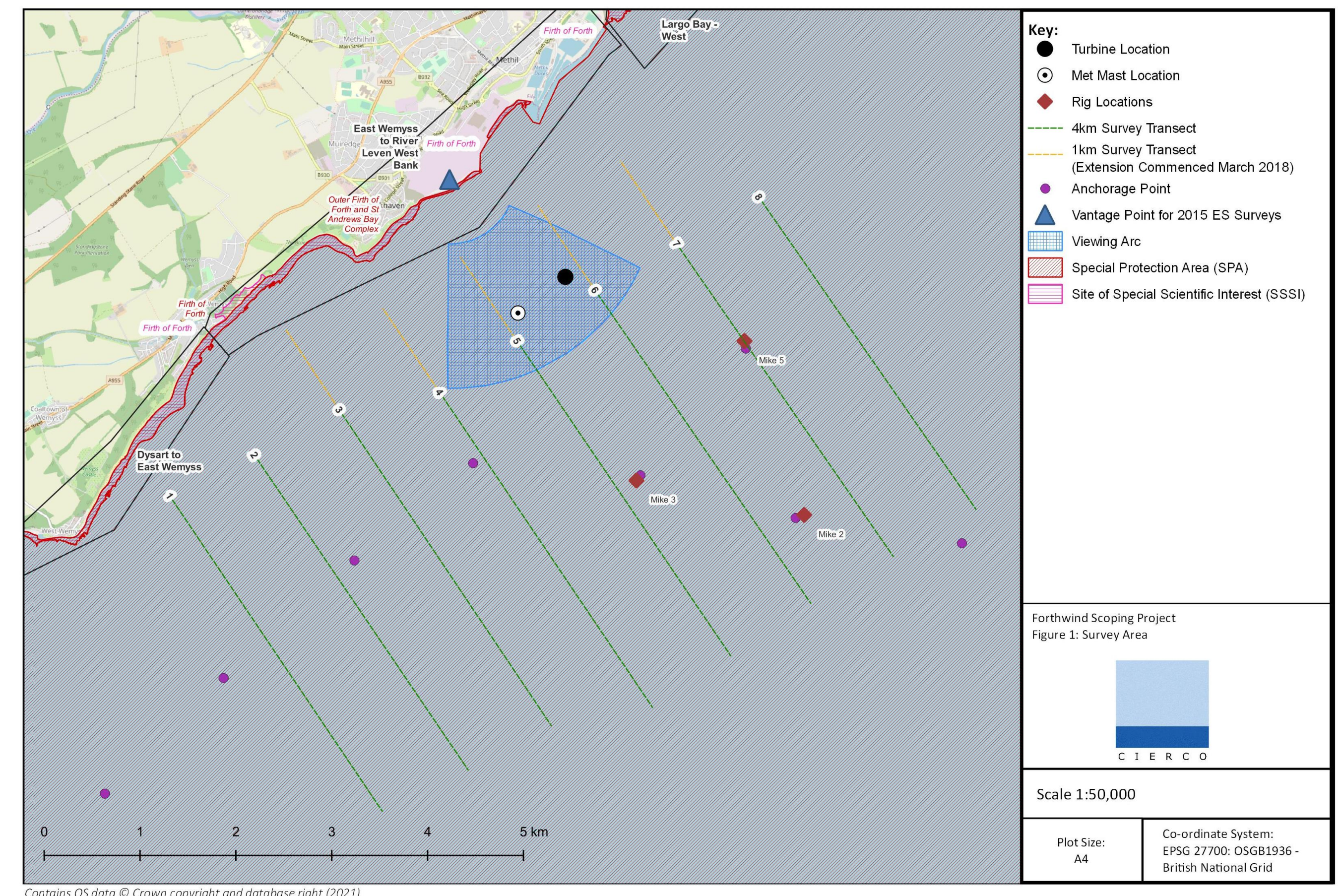
- Temporary disturbance to other sea users during installation.
- Disturbance to the seabed.
- Noise during construction activities.
- Visual impact during construction activities.



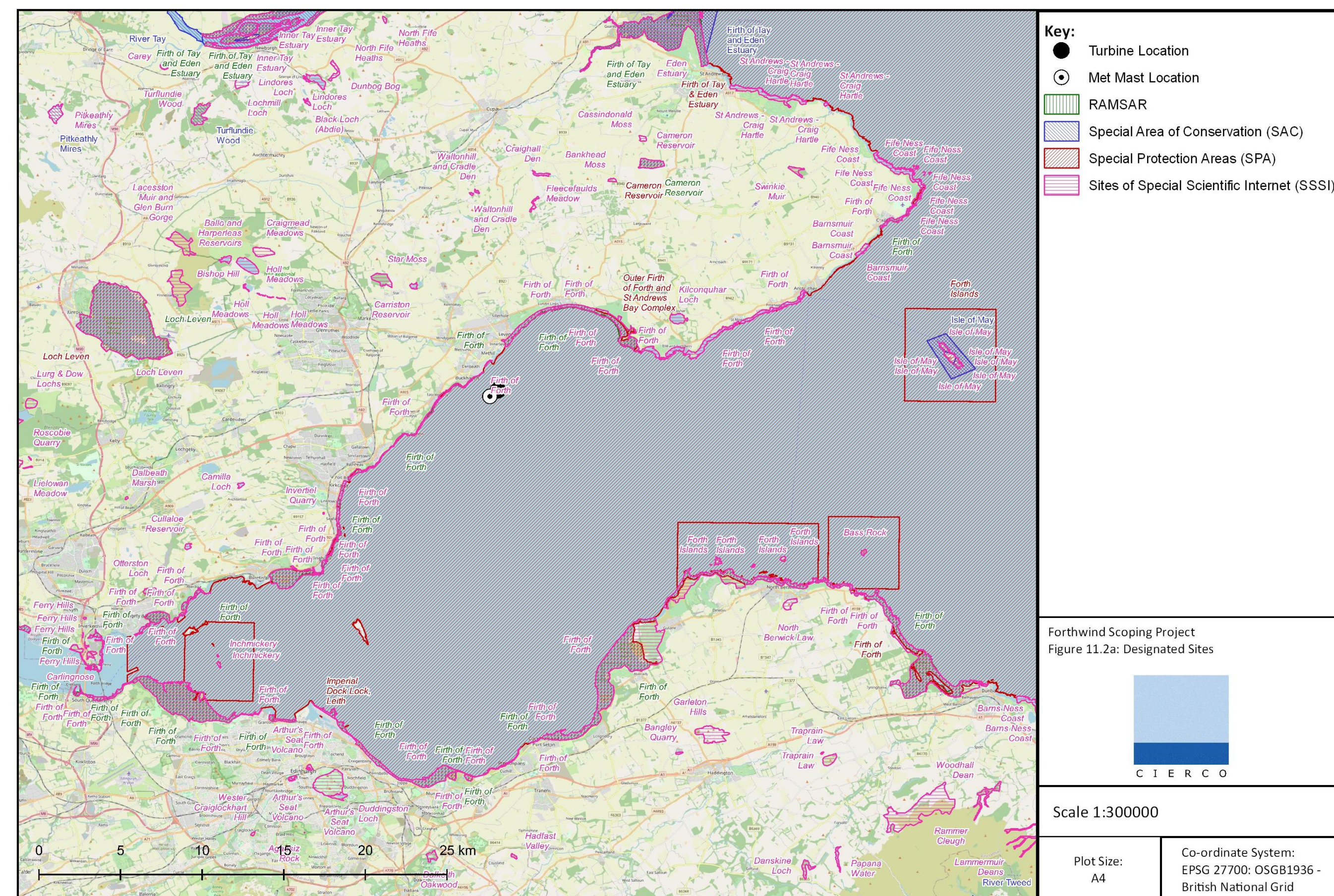
Baseline Environment & Assessment



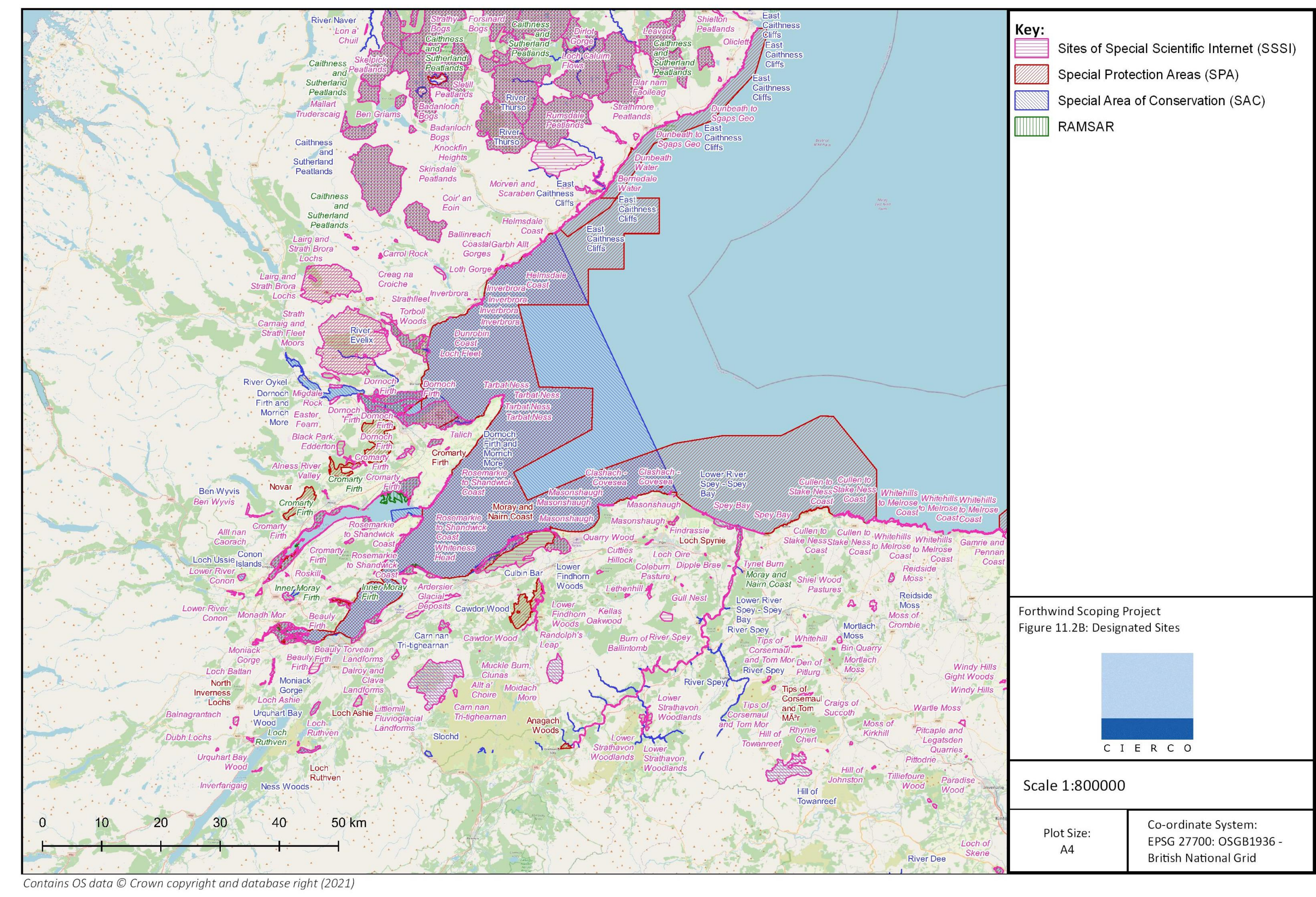
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Ornithological Assessment

Effect	Significance of Effect	Mitigation Proposed	Residual Effect
Construction			
Disturbance to seabirds from construction activity	Limited extent for a single turbine; short-term and temporary. Negligible significance.	No mitigation proposed.	Not significant.
Disturbance to prey from construction activity leading to effects on seabirds.	Limited extent for a single turbine; short-term and temporary. Negligible significance.	No mitigation proposed.	Not significant.
Operation			
Collision risk	'Worst case' quantified for gannet, kittiwake, herring gull, lesser black-backed gull, black-headed gull and common gull and not found to be significant for any species.	No mitigation proposed.	Not significant.
Displacement	'Worst case' quantified for gannet, kittiwake, guillemot, razorbill, puffin, European shag, eider and red-throated diver and not found to be significant for any species.	No mitigation proposed.	Not significant.
Disturbance of prey	Very limited for a single turbine and considered qualitatively; not significant for any species.	No mitigation proposed.	Not significant.
Decommissioning			
Disturbance to seabirds from construction activity	Limited extent for a single turbine; short-term and temporary. Negligible significance.	No mitigation proposed.	Not significant.
Disturbance to prey from construction activity leading to effects on seabirds.	Limited extent for a single turbine; short-term and temporary. Negligible significance.	No mitigation proposed.	Not significant.



The effects of the construction, operation and decommissioning of the Proposed Development on ornithological receptors have been assessed against the relevant SPA populations of concern and found to be not significant. The Proposed Development is not considered likely to significantly increase the levels of cumulative impact on any of the bird species or the SPAs of concern.



Commercial Fisheries Assessment



The Development area is of importance to local fishing vessels, especially those targeting lobster, crabs, Nephrops and to a lesser extent scallops; confirmed by landings, tracking data and consultation. Effects could occur during construction and decommissioning when fishing vessels may be excluded completely from the area, however, the duration will be relatively short and mitigation through application of safety zones and proper provision of information should keep disruption to as low as possible reducing the significance to minor.

During the operational phase of the Proposed Development, much of the potting activity will be able to resume operation in close proximity to the Development.

To mitigate impacts, procedures will be put in place to manage interactions between wind farm construction activities and fishing activities (i.e., claims for lost and/or damaged gear). Burial, or where not possible, protection of export cabling will be undertaken together with removal of seabed obstacles during and post-construction to reduce snagging risks. A post-construction survey will be undertaken and seabed rectification procedures will be identified.

Effect	Significance of Effect	Mitigation Proposed	Residual Effect
Construction			
<ul style="list-style-type: none"> -Temporary loss or restricted access to traditional fishing grounds -Displacement of fishing activities into other areas -Safety issues for fishing vessels 	Implications for fisheries during the construction phase including loss of available fishing area. Duration short but sensitivity of receptor medium. Impact moderate significance.	Dissemination of project information and ongoing liaison (FLOWW).	Minor significance.
Operation			
<ul style="list-style-type: none"> -Complete loss or restricted access to traditional fishing grounds -Displacement of fishing activities into other areas -Safety issues for fishing vessels 	Complete loss or restricted access to traditional fishing grounds. Duration is longer but the area is smaller as some gear will be able to return to area. The impacts will be reversible upon decommissioning. Magnitude is low as is sensitivity. Overall significance is minor.	Dissemination of project information.	Minor significance.
Decommissioning			
<ul style="list-style-type: none"> -Temporary loss or restricted access to traditional fishing grounds -Displacement of fishing activities into other areas -Safety issues for fishing vessels 	Implications for fisheries during the decommissioning phase including loss of available fishing area. Duration short but sensitivity of receptor medium. Impact moderate significance.	Dissemination of project information and ongoing liaison.	Minor significance.

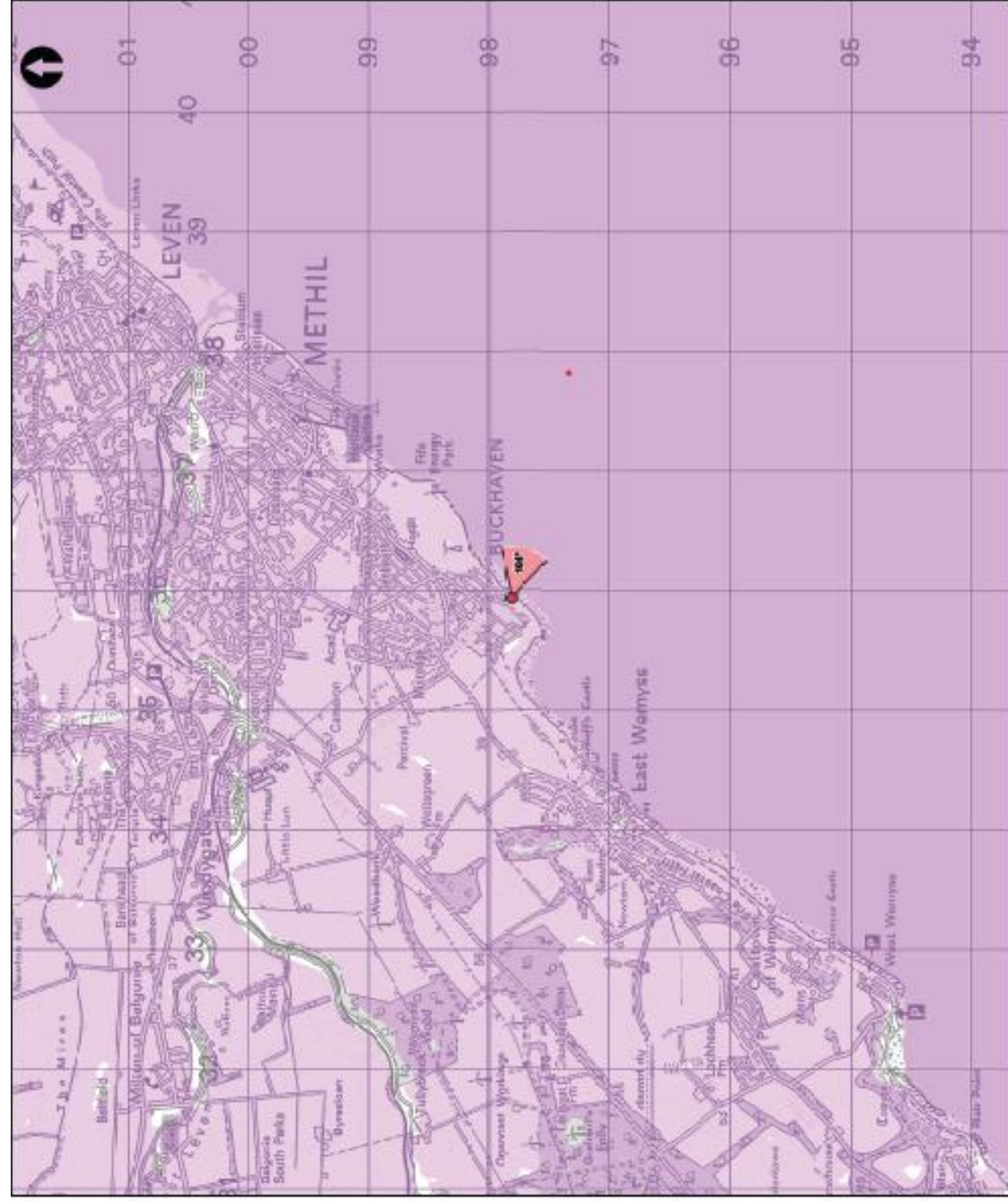
Buckhaven, Shore Street



Existing View from Buckhavem Shore Street



Photomontage View from Buckhavem Shore Street



OS reference: 335930 E 697809 N
Eye level: 8.3 m AOD
Direction of view: 104°
Nearest turbine: 1.941 km
Horizontal field of view: 90° (cylindrical projection)
Principal distance: 522 mm
Camera: Canon EOS 5D Mark II
Lens: 50mm (Canon EF 50mm f/1.4)
Camera height: 1.5 m AGL
Date and time: 23/06/16, 15:04

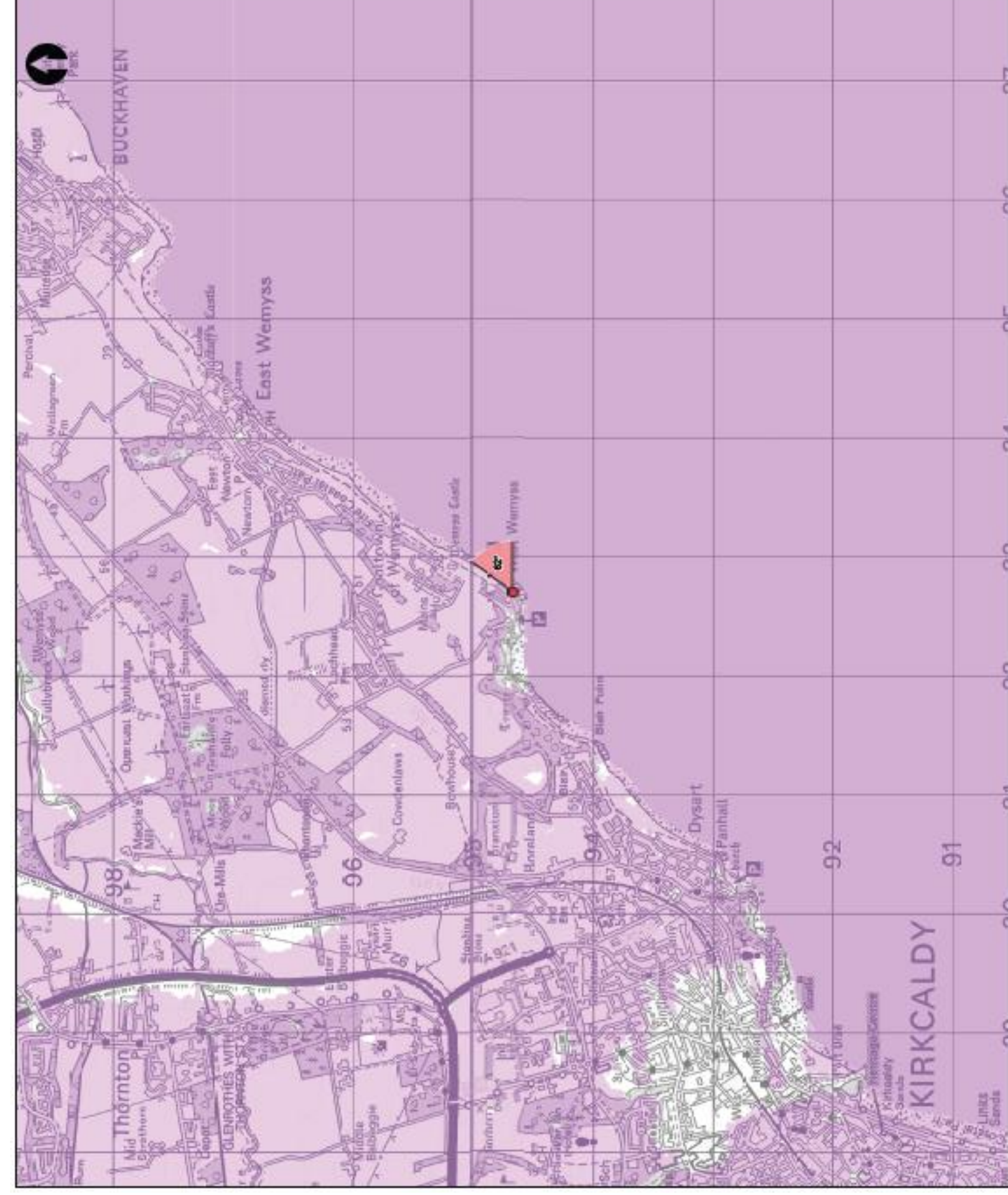
West Wemyss, Fife Coastal Path



Existing View from West Wemyss, Fife Coastal Path



Photomontage View from West Wemyss, Fife Coastal Path



OS reference: 335696 E 694664 N
Eye level: 7.14 m AOD
Direction of view: 62°
Nearest turbine: 5.77 km
Horizontal field of view: 53.5° (planar projection)
Principal distance: 812.5 mm
Camera: Canon EOS 5D Mark II
Lens: 50mm (Canon EF 50mm f/1.4)
Camera height: 1.5 m AGL
Date and time: 23/06/16, 14:13

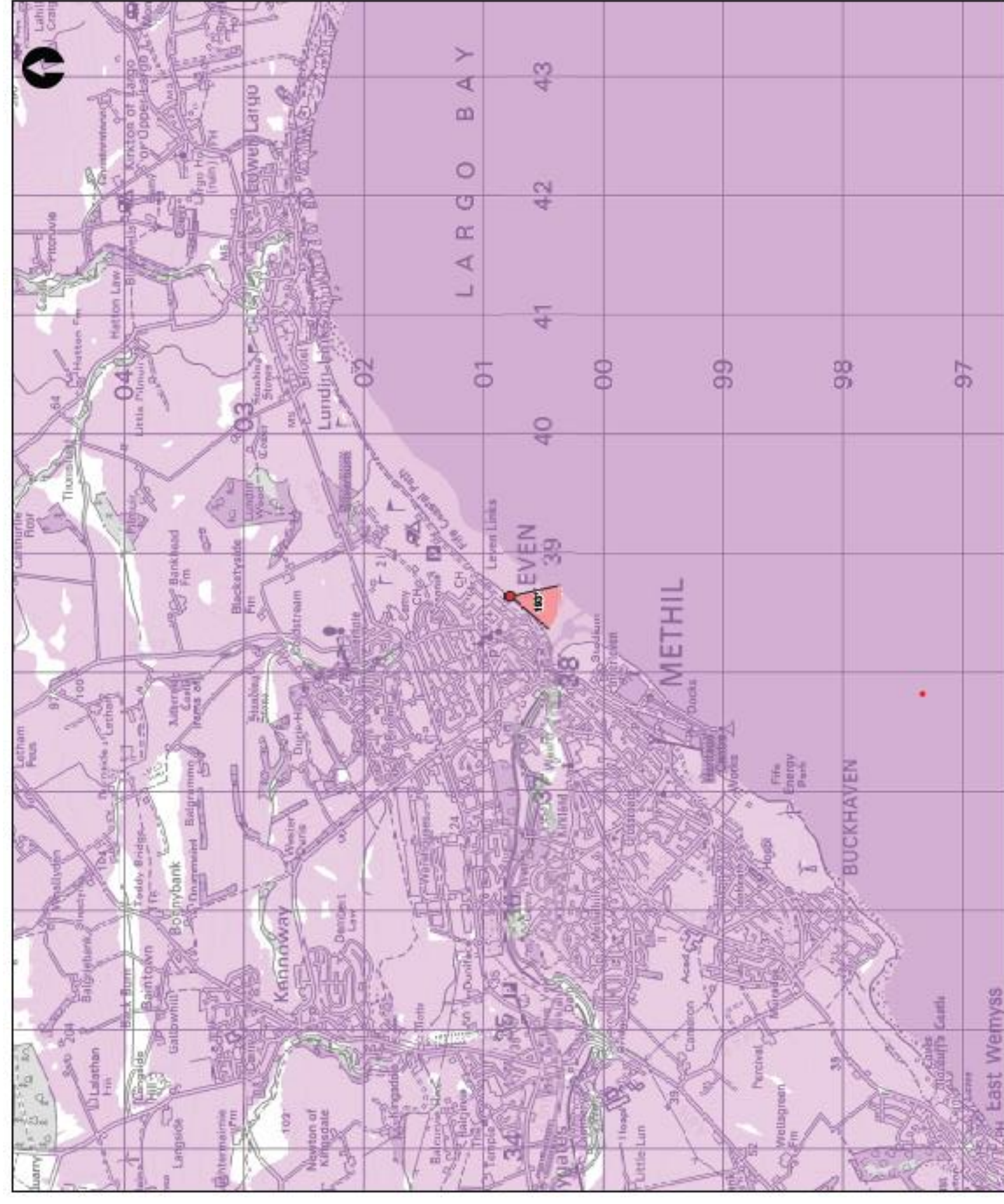
Leven, Fife Coastal Path



Existing View from Leven Beach



Photomontage View from Leven Beach



OS reference: 338631 E 700779 N
Eye level: 5.49 m AOD
Direction of view: 193°
Nearest turbine: 3.541 km
Horizontal field of view: 53.3° (planar projection)
Principal distance: 812.5 mm
Camera: Canon EOS 5D Mark II
Lens: 50mm (Canon EF 50mm f/1.4)
Camera height: 1.5 m AGL
Date and time: 23/06/16, 08.41

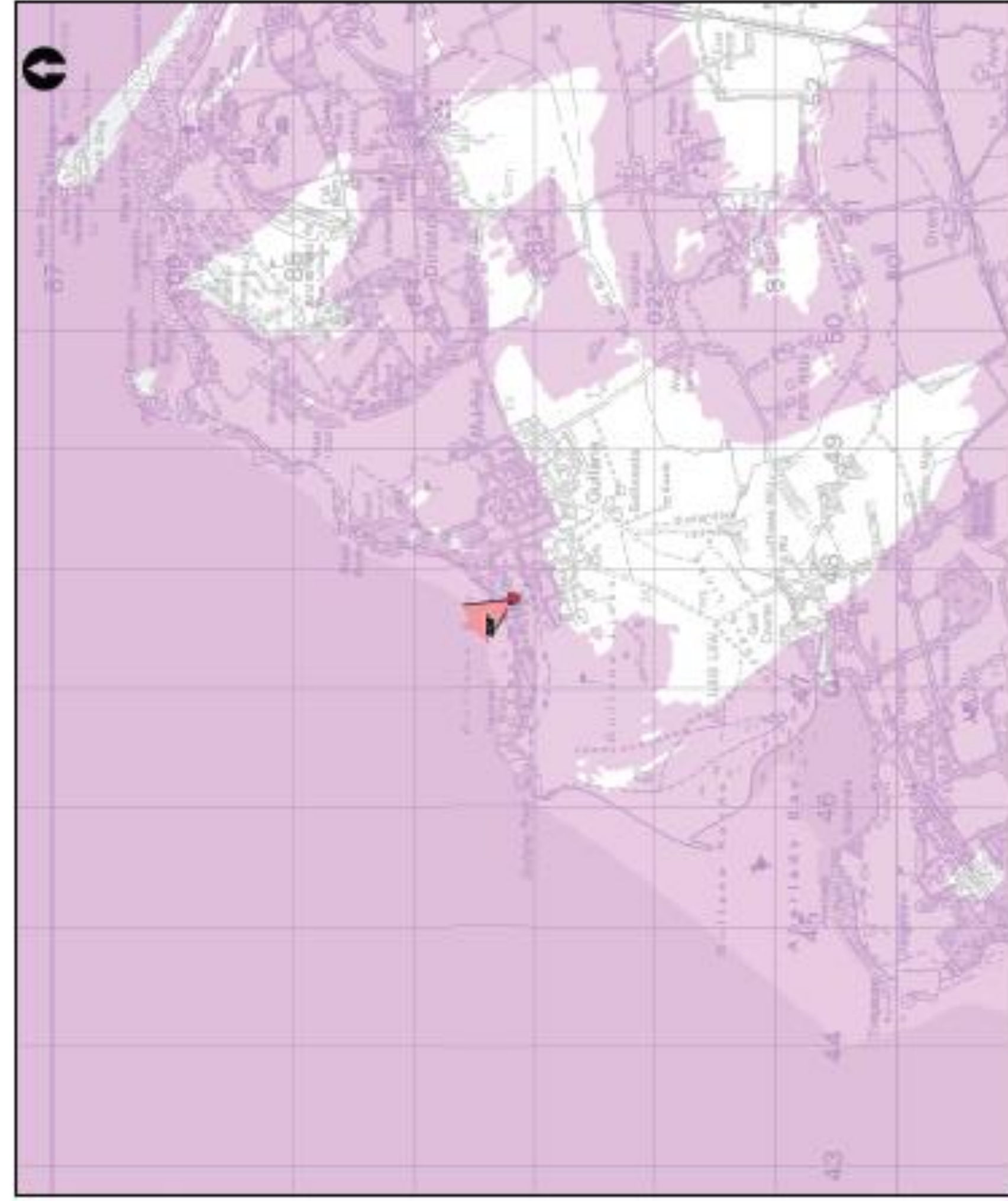
Gullane Beach, East Lothian



Existing View from Gullane Beach

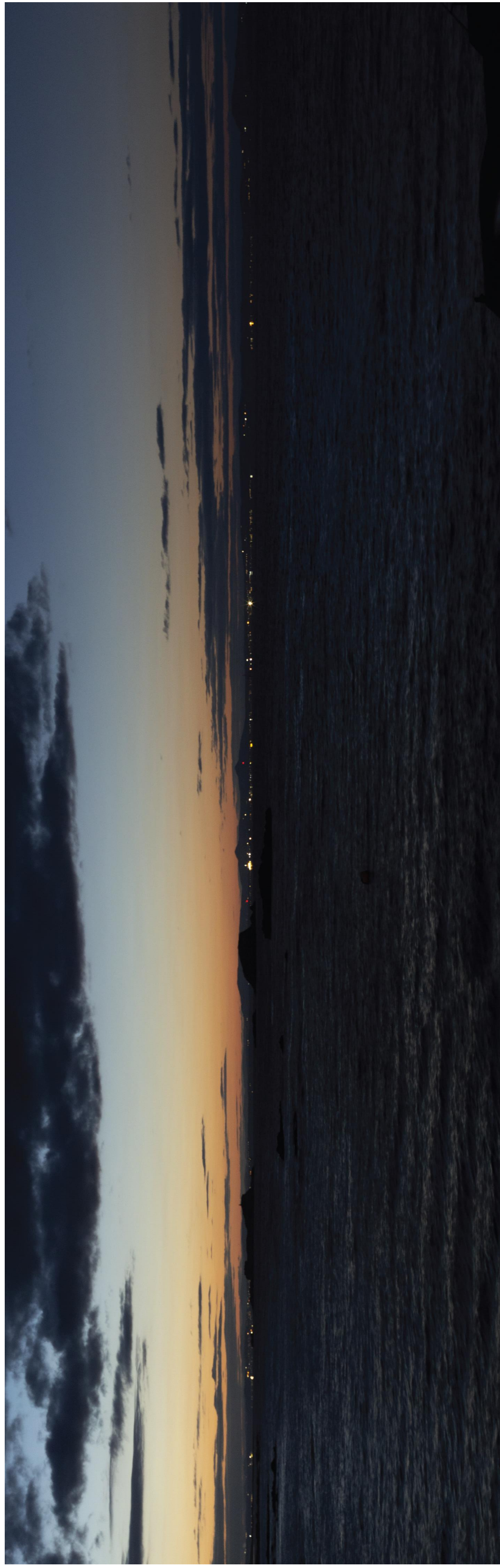


Photomontage View from Gullane Beach

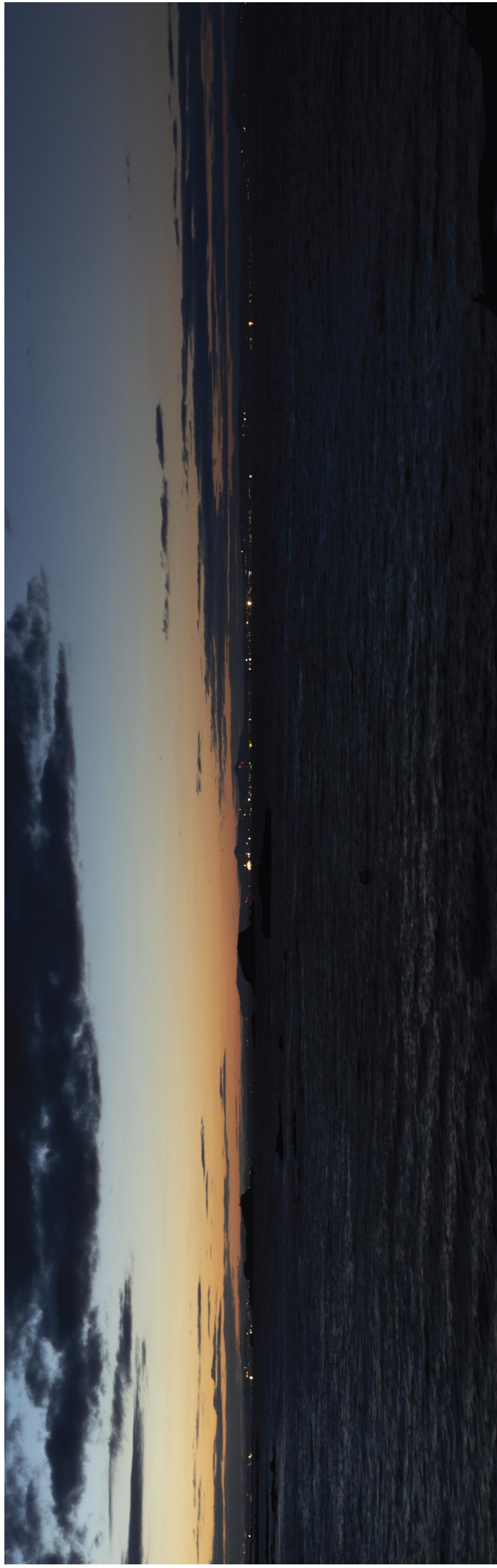


OS reference: 347734 E 683161 N
Eye level: 20.4 m AOD
Direction of view: 325°
Nearest turbine: 17.3 km
Horizontal field of view: 53.5° (planar projection)
Principal distance: 812.5 mm
Camera: Canon EOS 5D Mark II
Lens: 50mm (Canon EF 50mm f/1.4)
Camera height: 1.5 m AGL
Date and time: 10/08/21, 14:01

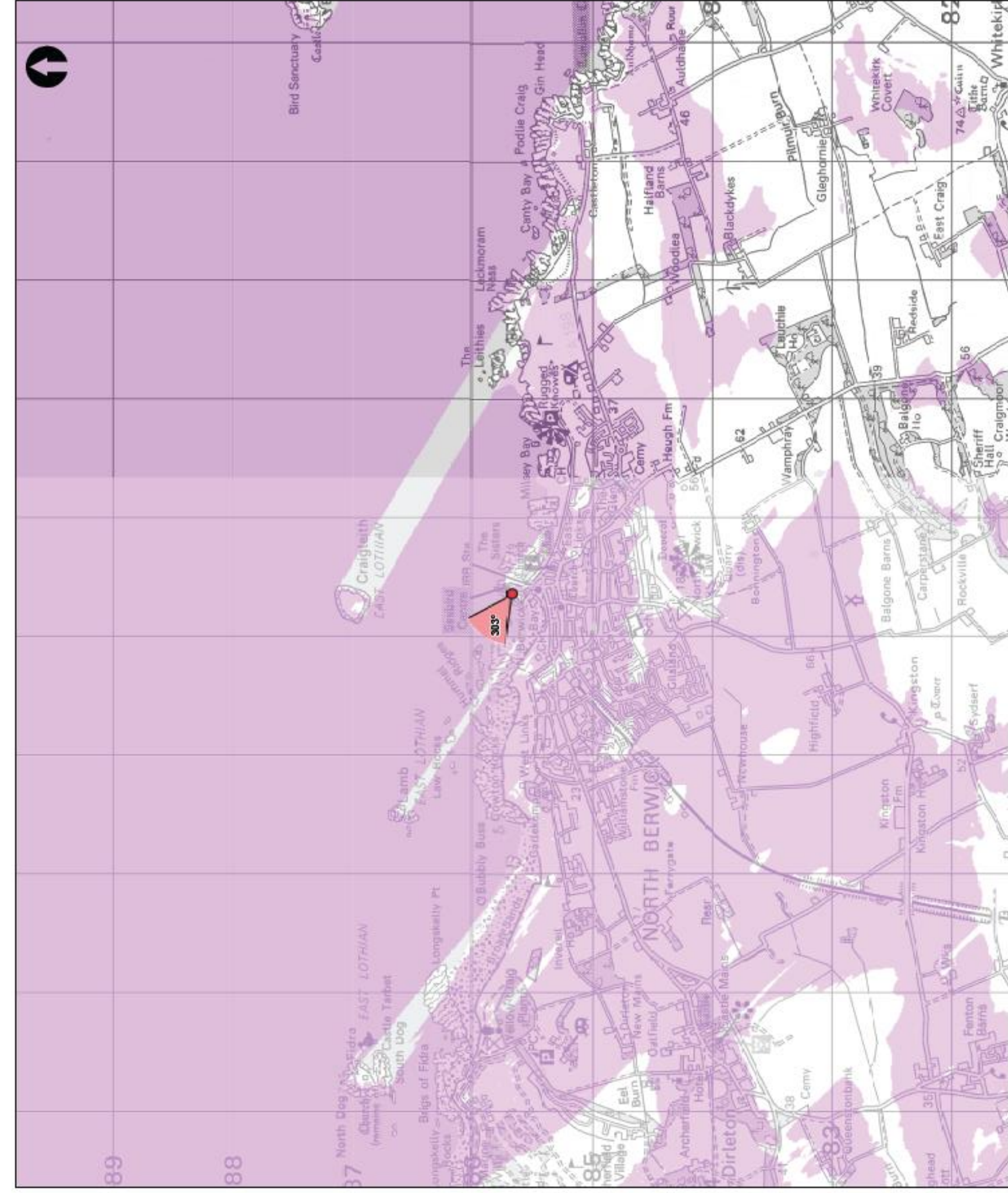
North Berwick Harbour at Night



Existing View from North Berwick Harbour



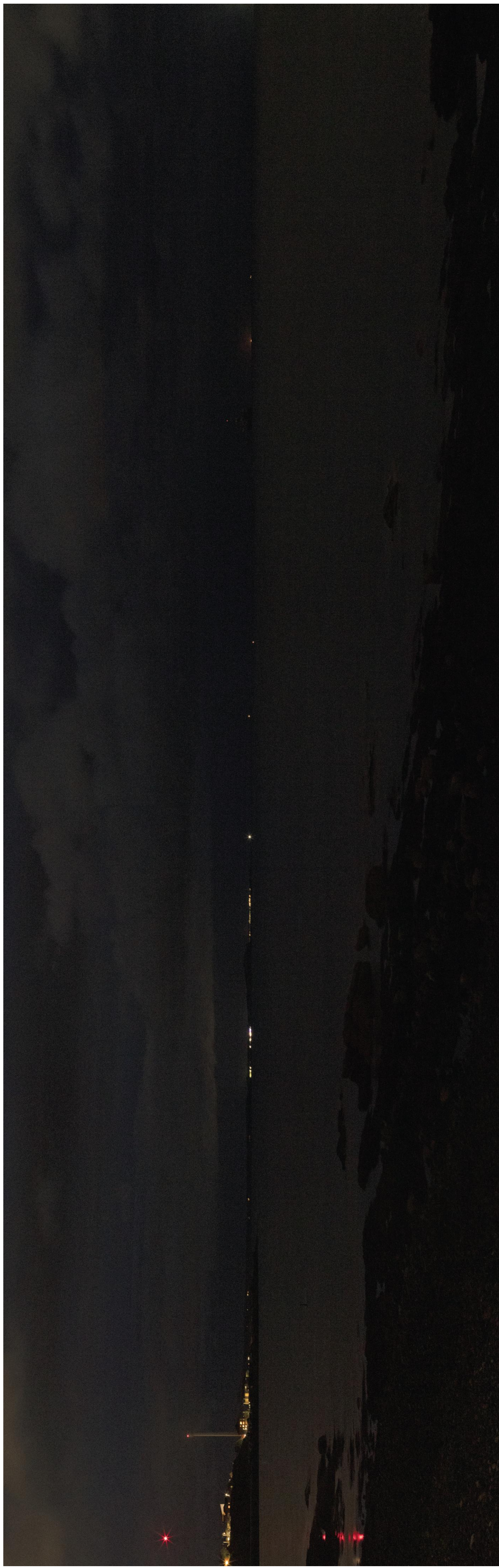
Photomontage View from North Berwick Harbour



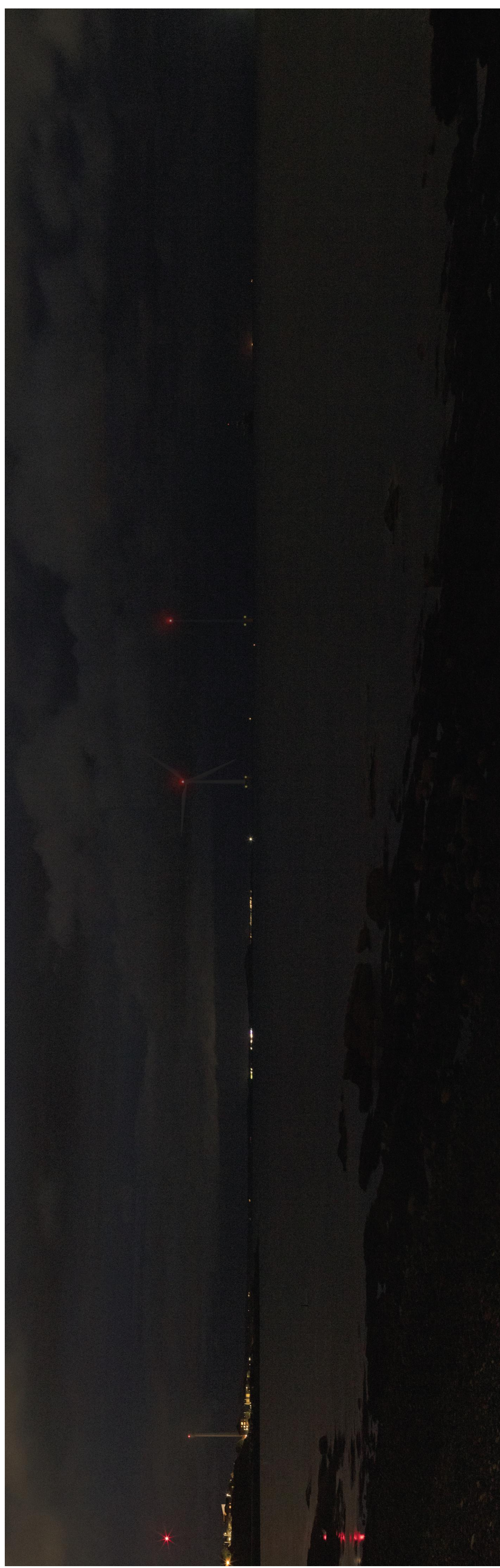
Viewpoint Location Plan - 53.5 Degree Photomontage View Scale 1:30,000

OS reference: 355357 E 685672 N
Eye level: 6.7 m AOD
Direction of view: 303°
Nearest turbine: 21.066 km
Horizontal field of view: 53.5° (planar projection)
Principal distance: 812.5 mm
Camera: Canon EOS 6D
Lens: 50mm (Canon EF 50mm f/1.4)
Camera height: 1.5 m AGL
Date and time: 15/10/21, 19:07

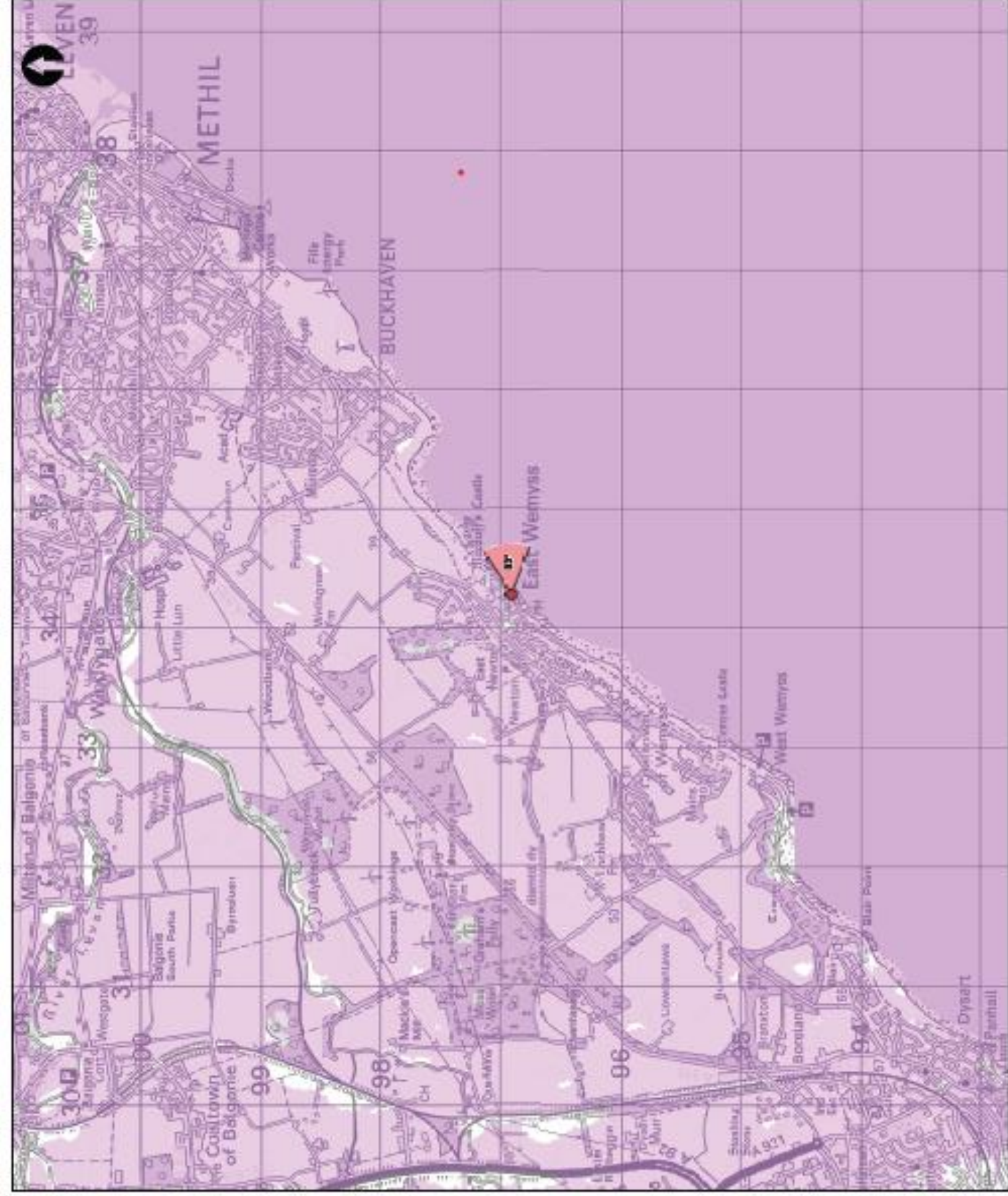
East Wemyss at Night



Existing View from East Wemyss



Photomontage View from East Wemyss



OS reference: 334272 E 696911 N
Eye level: 5.4 m AOD
Direction of view: 83°
Nearest turbine: 3.566 km
Horizontal field of view: 90° (cylindrical projection)
Principal distance: 522 mm
Camera: Canon EOS 6D Mark II
Lens: 50mm (Canon EF 50mm f/1.4)
Camera height: 1.5 m AGL
Date and time: 23/09/21, 19:56

Economic benefits of Forthwind

	% cost	Scottish content	UK content
Development and project management	2%	38%	80%
Turbine	19%	1%	7%
Substations	3%	8%	19%
Foundations	9%	4%	7%
Cables	2%	0%	7%
Turbine and foundation installation	60%	4%	6%
Cable installation	4%	5%	8%
Installation Other	3%	42%	75%
Operations and maintenance	49%	43%	81%
Decommissioning	2%	17%	30%
Total	100%	25%	48%

- The construction phase will create six jobs in project management and development and generate opportunities for up to 60 local workers to establish site facilities and grid connection cabling during the six-month construction.
- There is a realistic opportunity for Scottish companies to supply a number of components and services to this project, equating to 44% of the total project costs.
- Forthwind will support the equivalent of up to six full-time maintenance and administrative staff.
- The skills development and experience derived from the construction and operation of Forthwind will not only generate direct jobs but also support the further development of the wider Scottish supply chain to provide services to the future installation, operation and maintenance of this turbine design in Scottish, UK, European and worldwide markets.
- Forthwind has the potential to enhance the level of content in future developments which can be sourced within the local/Scottish supply chain, with the direct and indirect economic development this can generate



Project Timeline



March 2015

- Environmental Monitoring of wildlife (Marine Mammals and Birds) started at Methil

February 2017

- 2 years of wildlife monitoring completed

January 2022

- Planned Marine Licence and Section 36 consent application submitted to Marine Scotland

October 2022

- Target date to receive Marine Licence and Section 36 consent for Forthwind Array

December 2023

- Onshore Works Commence

August 2024

- Installation Commences

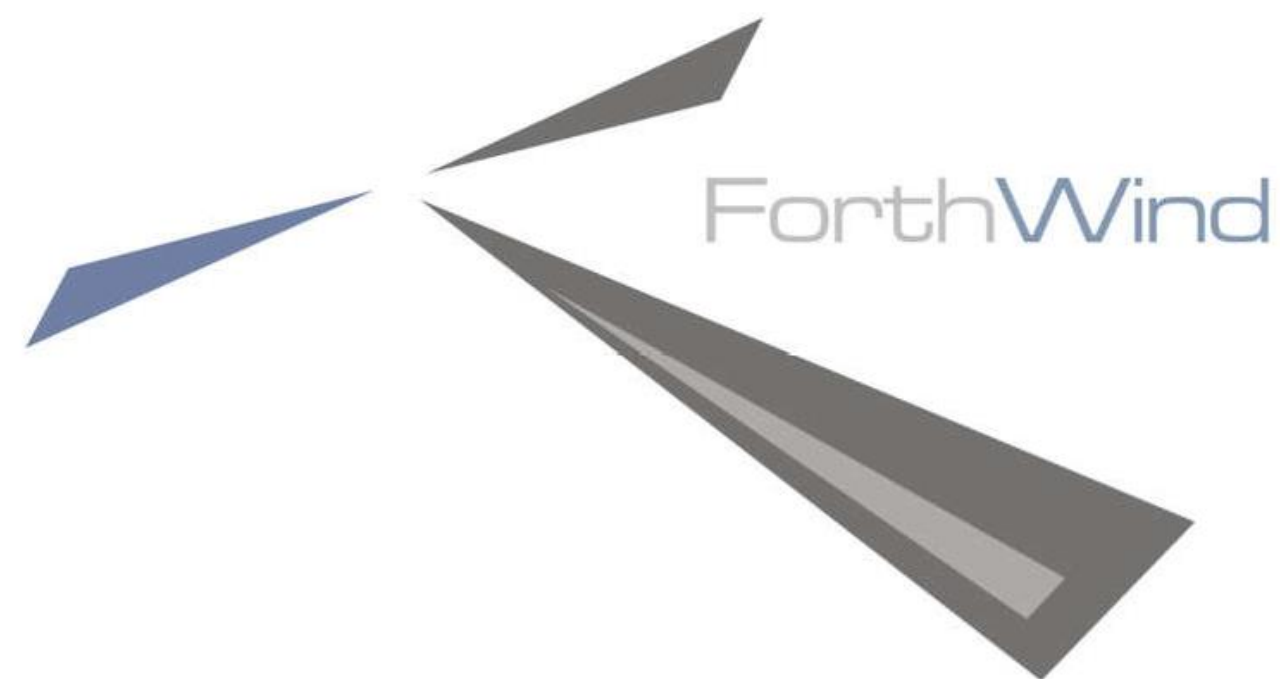
September 2024

- Targeted commissioning date for the turbine at Methil



Have your say...

If you would like to make any comments on the project proposals **to the project team** then please do so by **Friday 17th December 2021** in one of the following ways:



Email: gemma.lee@ciercoenergy.com; or

Post: Forthwind Ltd, c/o Cierco,
The Boathouse, Silversands,
Hawkcraig Road, Aberdour, KY3 0TZ

Please note that comments made to Forthwind Ltd are not representations to the Scottish Ministers; however your views will be included in a Pre Application Consultation report that will accompany the Section 36 consent and Marine Licence application.

*When Forthwind Ltd makes a formal application for a Marine Licence for the project, an opportunity will be given for members of the public to make representations to the Scottish Ministers on the application. During this time any formal representations on the project proposals can be made to the **Scottish Government** via the **Marine Scotland Licensing Operations Team (MS-LOT)**. Please make sure you say it is about the Forthwind Offshore Wind Demonstration Project. Your representation, comments and or feedback should be dated and clearly state the name (in block capitals) and full return email or postal address of those making comment.*

marinescotland

